Chapter 1 Overview

Congratulation on the purchase of your new graphics accelerator card! You are now the owner of a state-of-the-art video adapter that offers features and functionality equal to, and beyond any other in its VGA class.

System Requirements

The minimum system requirements for installing the graphics card are as follows:

- a personal computer with a Pentium, Pentium II, Pentium III or compatible microprocessor and at least 8MB of memory
- a VGA analog monitor supporting a minimum 60Hz vertical refresh rate
- an available AGP or PCI bus slot
- a CD-ROM drive

Features

- S3 128Bit High Performance Savage2000 Controller.
- S3TL Transformation & Lighting.
- Support 32/64MB SDRAM Video Memory (Optional).
- Support TV out and DVI Interface for LCD Panel (Optional).
- 350MHz RAMDAC, Max. Resolution support 2048x1536.
- Single-pass QuadTexture engine design.
- Auto-expansion and centering for VGA text and graphics modes.
- Full Featured with Acceleration for BitBLT, Rectangle Fill, Line Draw, Polygon Fill, Panning/Scrolling and Hardware Cursor .
- Hardware Accelerated DVD Playback.

Software Support

- Microsoft Windows 3.x/95/98/2000
- Microsoft Windows NT4.0
- Direct3D, DirectDraw and DirectShow
- OpenGL ICD for Windows 9x and Windows NT
- OS/2 3.0/4.0 (Warp) (Optional)
- Linux Display Drivers(Optional)

Chapter 2 Hardware Installation

Static electricity can severely damage electronic parts. Take these precautions:

- ***Before touching any electronic parts, drain the static electricity from your body. You can do this by touching the internal metal frame of your computer while it's unplugged.***
- ***Don't remove a card from the anti-static container it shipped in until you're ready to install it. When you remove a card from your computer, place it back in its container.***
- ***Don't let your clothes touch any electronic parts.***
- ***When handling a card, hold it by its edges, and avoid touching its circuitry.***

Before You Begin

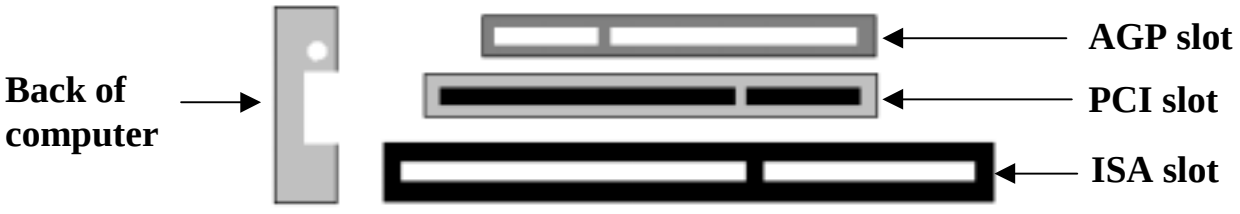
Before you process further, make sure your computer system meets the peripheral requirements and switch to the standard VGA display driver.

Prepare Your Computer for Installation

Prior to working on your computer, make sure the power of the computer and any related equipment is turned off.

Select a Vacant Expansion AGP (PCI) Slot

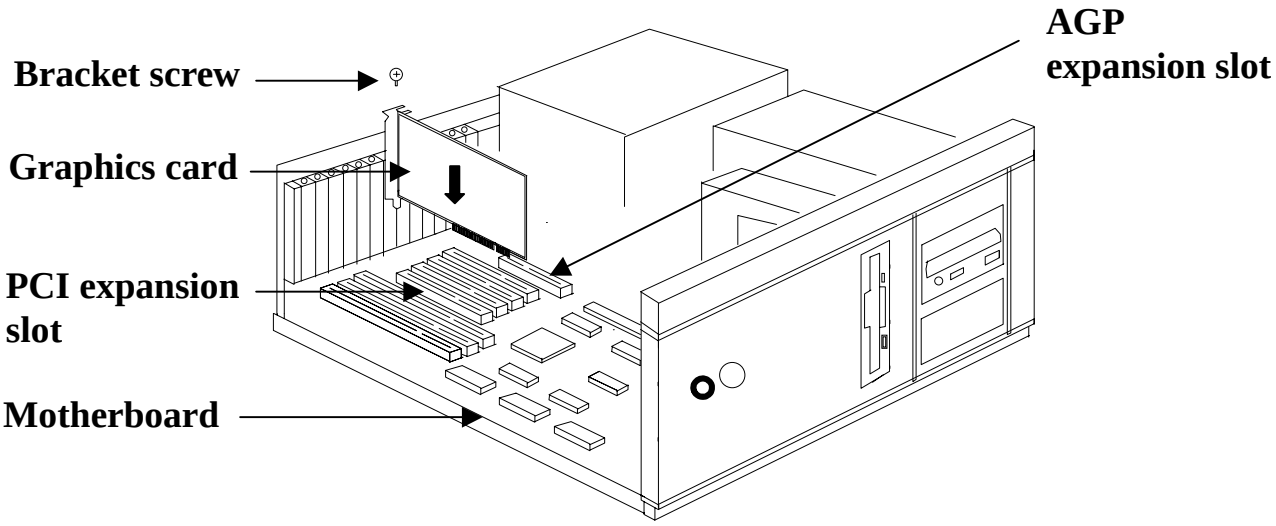
Most computers have a combination of AGP, PCI and ISA expansion slots. AGP slots are usually made from plastic of a contrasting brown color (beige color), and are shorter than other slots in your computer. Your system manual should identify the AGP or PCI slots, as appropriate for your model. Plugging your Graphic card into an incorrect slot could damage the card, your computer, or both. Do not try to force a card into a slot that does not accommodate it, as it is probably the wrong slot.



AGP vs. PCI vs. ISA expansion slots

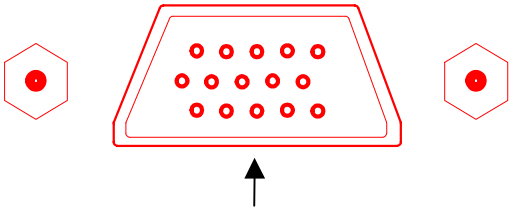
Insert your Graphic Card

Remove the cover for the slot you intend to use and save the screw for the mounting bracket. Then, pick up the Graphic card and position it over the expansion slot you've chosen. Push the card with firmly and evenly until it's fully seated in the slot. Replace the screw to secure the bracket of the Graphic card to the computer chassis.

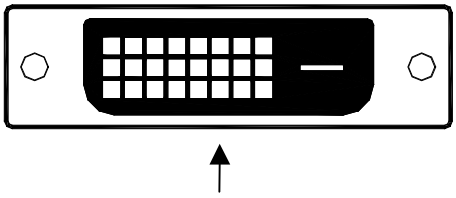


Connect the Monitor/DVI/TV

Plug your monitor/DVI/TV cable into the monitor/DVI/TV connector on your Graphic card. Make sure the other end of the monitor/DVI/TV cable is properly connected to your monitor/DVI/TV.



Monitor Connector (Blue)



DVI Host Receptacle Connector

Chapter 3 Software Installation

- ☞ ***Before installing the Display driver, make sure your Windows 95/98/NT was installed in VGA mode and functions properly.***
- ☞ ***For Windows 95 systems, please install DirectX before attempting to use the MPEG Movie Player.***
- ☞ ***To use an AGP graphics card with NT4.0, you may need to re-install NT with Service Pack 4 (SP4) or later version before installing the AGP card.***
- ☞ ***If you are running Windows NT4.0, please note that some drivers are not compatible with earlier releases of Windows NT. Consult your dealer or local support to ensure you have the most recent releases for Windows NT and the drivers.***

Before You Begin

If your system is running Windows 95/98/NT, the **New Hardware Found** dialog box will appear after restart. Select **Driver from disk provided by hardware manufacturer**, click **OK**, then follow all on-screen instructions. If the **New Hardware Found** dialog box does not appear, follow the instructions below.

Setup VGA Mode

Click the right mouse button anywhere on the Windows 95/98/NT desktop and select **Properties** from the pop-up menu that appears on screen. Select **Settings** | **Change Display Type** (For OSR2 users, please select **Settings** | **Advanced Properties.** For Windows 98 users, please select **Settings** | **Advanced.** For Windows NT users, please select **Setting** | **Display Type**) and then click the **[Change]** button for Adapter Type. When the **Select Device** dialog box appears on the screen, please select **[Standard display types]** from the manufacturers list and select **Standard Display Adapter (VGA)** from the list of models then click **OK**.

Install Software Driver

1. Turn on your computer and start Windows 95/98/NT.
2. Insert the **Driver CD** into your CD-ROM drive.
3. Click the **Start** button on the task bar and then select **Run** button.
4. Type D:**Cdsetup.exe** [**Enter**] in the Run dialog box (where **D:** is the location of your CD-ROM drive).
5. The **Expertool VGA Installation** dialog box will appear on the screen, please click **"Continue"** button and follow the instructions on screen to complete installation.
6. Final, restart your computer to allow the changes to take effect.

Windows 95/98/NT Display Properties

Windows 95/98/NT allows you to select resolution, color depth, refresh frequency and font size using the standard Windows 95/98/NT Display Properties screen, which can be accessed by right clicking anywhere on the Windows 95/98/NT desktop, and then selecting Properties from the pop-up menu that appears on screen.

Chapter 4 Display Properties for Windows

These pictures in this chapter are only for Win98 reference.

☞ ***If the Color Correction doesn't appear, please adjust the color palette to high color or true color.***

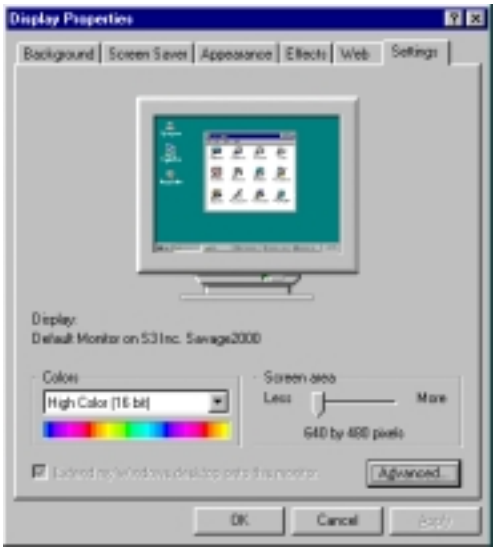


Figure 4-1

Figure 4-2

Click the right mouse button anywhere on the Windows desktop and select **Properties** from the pop-up menu then **Display Properties** dialog box will appears on screen. In **Display Properties**, for Win98, please select **Settings** | **Advanced** button then **S3 lnc. Savage 2000 Properties** dialog box will appear as Figure 4-2.

(As Figure 4-2)

Display: Displays the current font size for the selected monitor. To use a different font size, click the arrow, and them click the font size you want.

Compatibility: Click the option that you want to apply whenever you change your monitor color setting.

Restart the computer before applying the new color settings: Specifies that you want your want your computer to restart automatically when you change system color settings.

Apply the new color settings without restarting: Specifies that you want your computer to apply changes to system color settings without restarting.

Ask me before applying the new color settings: Specifies whether Windows should display a prompt to restart every time you change system color settings.

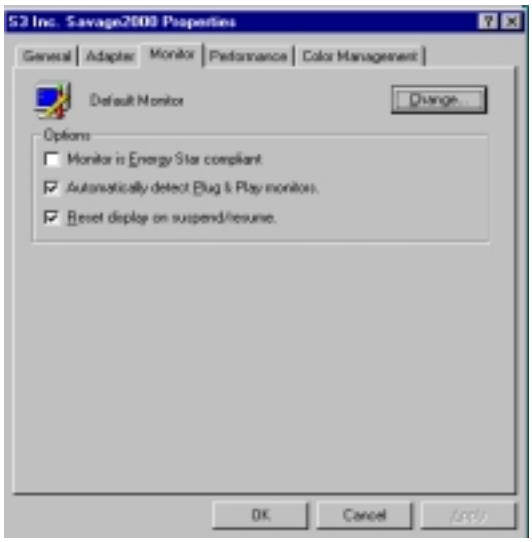


Figure 4-3 **Figure4-4**

(As Figure 4-3)

S3 lnc. Savage 2000: Show what type of display adapter you are currently using. To install the software for a new display adapter, click **change**.

Manufacturer/Features/Software version/Current files: Display information about your display adapter.

(As Figure 4-4)

Default Monitor: Shows what type of monitor you are currently using. To install the software for a new monitor, click **change**.

Options: Indicates that your monitor can reduce its power usage. For Windows to take advantage of this feature, the monitor must adhere to the VESA Display Power Management Signaling [DPMS] specification or to another method of lowering power consumption [such as the LCD screens on portable computers.] If your monitor has an Energy Star™ emblem, it probably supports DPMS. Energy Star is a program administered by the U.S. Environmental Protection Agency [EPA] to reduce the amount of power used by personal computers and peripherals. The Energy Star emblem does not represent EPA endorsement of any product or survive.

Automatically detect Plug & Play monitors: Specifies whether Windows should automatically detect whether your monitor is Plug and Play compatible and use the appropriate software for it.

Reset display on suspend/resume: Specifies whether you want Windows to reset the display after you put your computer in Suspend mode and then resume activity.

Figure 4-5

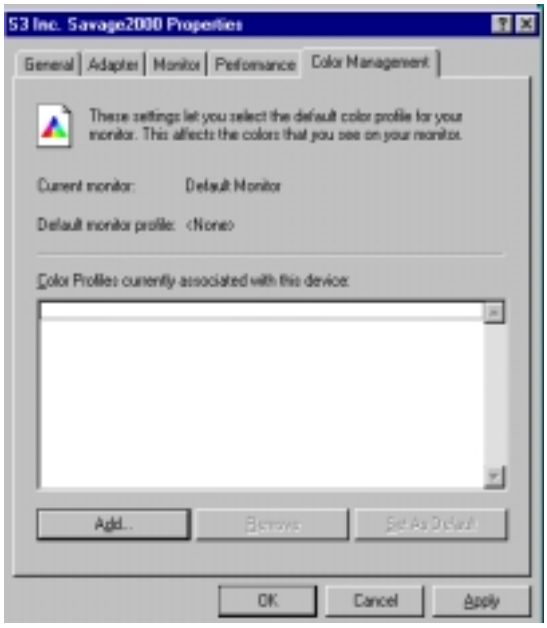


Figure 4-6

(As Figure 4-5)

Graphics: Specifies the degree of acceleration you want for graphics hardware. Full acceleration is the fastest and is recommended for most computers. If your computer is having problems and you suspect graphics acceleration to be the cause, use the highest setting at which you do not have problems.

(As Figure 4-6)

These settings let you select the default color profile for your monitor. This affects the colors that you see on your monitor: Lists all the color profiles currently associated with monitor. Click a profile to make it the active profile.
Otherwise, the default profile is the active profile.

Chapter 5 Expertool for Windows

- ☞ ***For maximum compatibility and flexibility, the Expertool utility can be loaded and unloaded dynamically. Notice: Many features which by the Expertool and only available when Expertool was actived.***
- ☞ ***These pictures in this chapter are only for Win98 reference.***

Expertool is a display control and desktop enhancement utility for Windows 95/98/NT, specially designed and optimized for use with your graphics accelerator. You should think of Expertool as a kind of supplementary **"device driver"** which works in conjunction with your accelerator's display driver.

Installation

Expertool will automatically install when you use the Setup program under Windows 95/98/NT (refer to Chapter 3). Once installed, it can be activated by selecting **Programs | Expertool | Expertool** (Figure 5-1) or clicking on the "**Expertool**" (Figure 5-3) icon in the System tray to show the Expertool Properties on your screen. (Figure 5-2)

Uninstall

1. Click **Close** button to close Expertool. (Figure 5-2)
2. Then click **Start** button on the task bar and select **Settings | Control Panel | Add/Remove Programs**.
3. Choice **Expertool** item for Install/Uninstall and click the **Add/Remove** button.
4. Click **OK** to uninstall Expertool.

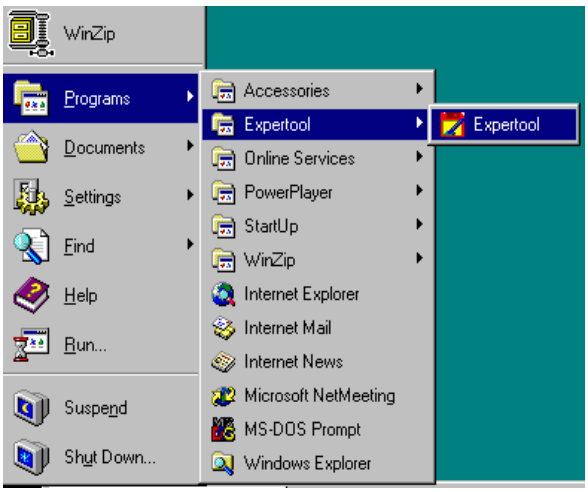


Figure 5-1

Figure 5-2

Figure 5-3

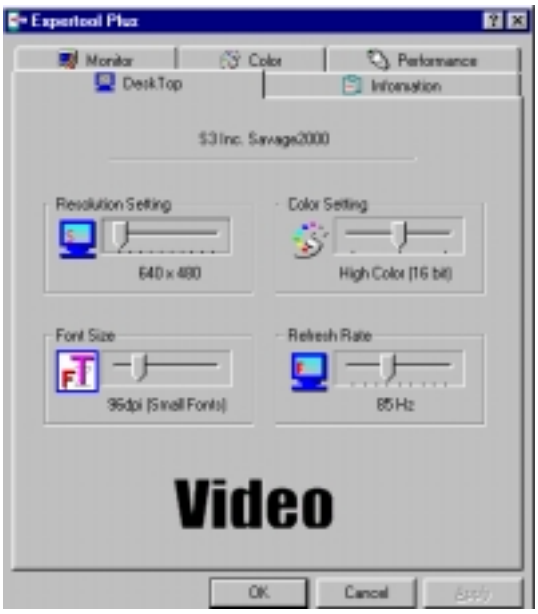


Figure 5-4

Figure 5-5

(As Figure 5-4)

Desk Top: Displays the current Resolution Setting, Color Setting, Font Size and Refresh Rate for the monitor. Drag the slider to specify values for each setting and click **OK** to put changes into effect.

(As Figure 5-5)

Information: Displays the current display settings and information of your computer.

Run this program each time Windows starts check box: Select this option to run Expertool immediately each time Windows starts.

Figure 5-6

Figure 5-7

(As Figure 5-6)

Screen Adjustment: Selects **Adjust** to adjust the screen position with the keyboard. If you wish to cancel any changes you've made, select **Default**.

Monitor Information: Shows information about your monitor.

Hide modes that this monitor cannot display: Unchecking this box will allow you to set your display to modes that this monitor cannot display correctly. This may lead to an unusable display and/or damaged hardware.

Power Saving: Allows you to adjust the Power Saving settings for Standby, Suspend or Shut-off mode.

Standby check box: This option instantly places your monitor in standby mode, which delivers minimal power savings but provides optimal recovery time.

Suspend check box: This option instantly places your monitor in Suspend mode, which delivers maximum savings but requires a somewhat longer recovery time than Standby mode.

Shut-off check box: This option effectively turns your monitor off, and recovery time is practically equivalent to turning the monitor on using the monitor's power switch.

(As Figure 5-7)

Color: Move the slider to adjust the gamma value. The farther you slide this to the right, the higher the gamma value, and the brighter your display will be. The more you slide this to the left, the lower the gamma value, and the dimmer your display will be.

Figure 5-8

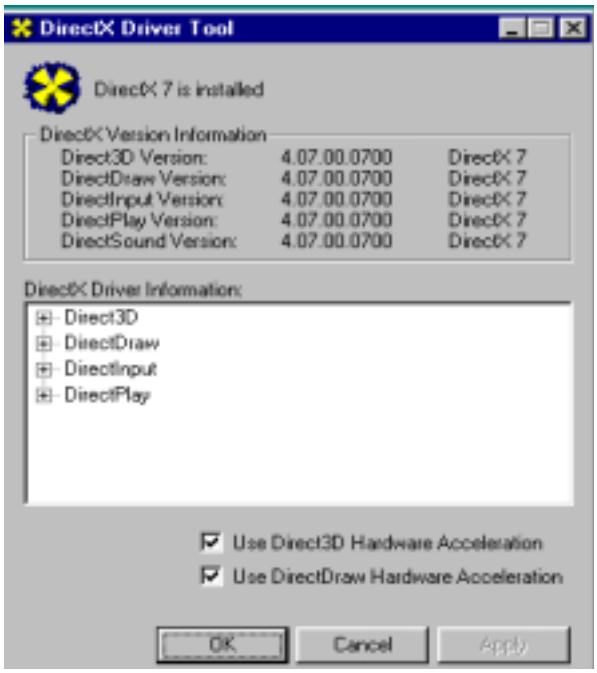


Figure 5-9

(As Figure 5-8)
Memory/Core Clock Setting Slider Control: Allows you to adjust your video memory/core clock for peek performance and maximum stability. The higher you set the memory/core clock the greater the performance increase. But changing this value will affect the stability of the VGA card. It is recommended that you use the original setting.

(As Figure 5-9)
DirectX: DirectX properties vary depending on the version of windows you are running, the version of DirectX installed, and the type of DirectX enabled drivers installed. This dialog box will also display the system's DirectX capabilities, and related information.

Figure 5-10

(As Figure 5-10)
Zoom In: Clicks on the client area and drags the mouse to zoom the desktop.

(As Figure 5-2)
Minimize: Close the menu and minimizes this application.
Close: Close this application and disables the features it supports.

Chapter 6 Technical Information

Display Memory Configuration

Memory-Resolution/Color

The table below is for reference only.

	256 color	16bit	32bit
640x480	200Hz	200Hz	200Hz
800x600	200Hz	200Hz	200Hz
1024x768	160Hz	160Hz	120Hz
1152x864	120Hz	120Hz	100Hz
1280x1024	120Hz	120Hz	85Hz
1600x1200	100Hz	100Hz	60Hz
1920x1440	85Hz	85Hz	-
2048x1536	72Hz	72Hz	-

Monitor Connector Pin Assignments

Pin no.	Function	Pin no.	Function
1	Red Video	9	+5V
2	Green Video	10	Sync Return (ground)
3	Blue Video	11	NC
4	NC	12	DDC DATA
5	Ground	13	Horizontal Sync
6	Red Return (ground)	14	Vertical Sync
7	Green Return (ground)	15	DDC CLOCK
8	Blue Return (ground)		

VESA VGA Mode Table

Mode (hex)	Pixels	Colors
100	640 by 400	256
101	640 by 480	256
102	800 by 600	16
103	800 by 600	256
105	1024 by 768	256
107	1280 by 1024	256
109	132 by 25	16
10a	132 by 43	16
10e	320 by 200	256
10f	320 by 200	16M
111	640 by 480	64K
112	640 by 480	16M
114	800 by 600	64K
115	800 by 600	16M
117	1024 by 768	64K
118	1024 by 768	16M
11a	1280 by 1024	64K
11b	1280 by 1024	16M
11d	640 by 400	64K
11e	640 by 400	16M
120	1600 by 1200	256
122	1600 by 1200	64K
124	1600 by 1200	16M
12e	320 by 200	256
131	320 by 400	256
133	320 by 400	64K
134	320 by 240	16M
136	1920 by 1440	256
138	1920 by 1440	64K
13f	1280 by 960	256
141	400 by 300	256
143	400 by 300	64K
144	400 by 300	16M
146	1920 by 1200	256
148	1920 by 1200	64K
14b	1600 by 1024	256
14c	1600 by 1024	64K
14e	1600 by 1024	16M
14f	1280 by 960	64K
151	512 by 384	256

153	512 by 384	64K
154	512 by 384	16M
156	2048 by 1536	256
156	2048 by 1536	256
158	2048 by 1536	64K
15c	840 by 480	256
15d	840 by 480	64K
15f	840 by 480	16M
161	1152 by 864	256
163	1152 by 864	64K
164	1152 by 864	16M
166	1920 by 1080	256
167	1920 by 1080	64K
168	1920 by 1080	16M
16a	1280 by 960	16M
16c	1368 by 768	256
16d	1368 by 768	64K
16f	1368 by 768	16M
171	720 by 480	256
173	720 by 480	64K
174	720 by 480	16M
17c	720 by 576	256
17e	720 by 576	64K
17f	720 by 576	16M

Chapter 7 Trouble Shooting

Problem: After installation and restarting, Windows 95 informs me that display settings are still incorrect. There may be conflict between previous and current display drivers. This is caused by incomplete removal of previous display driver. Try the following steps to remove it.

Solution:

(1) Use the right mouse button to click on the "My Computer" icon on your desktop.
(2) Select "Properties" and the "System Properties" box should appear.
(3) Click on the "Device Manager" tab
(4) You will see a list of devices on your computer.
(5) Open "Display Adapters" in the list by double clicking it.
(6) You will find two (or more) conflicting adapters listed here.
(7) Remove all previous adapters by selecting them and selecting "Remove"
(8) Close Device Manager and restart Windows 95.
(9) Now your display driver should work correctly.

Problem: After installing the driver, Windows 95 doesn't prompt me to restart and the driver still doesn't work after a manual reboot. You may have installed similar drivers before. Try the following steps to install:

Solution:

(1) Use right mouse button to click on the "My Computer" icon on your desktop.
(2) Select "Properties" and the "System Properties" box appears
(3) Click on the "Device Manager" tab.
(4) You will see a list of devices on your computer.
(5) If "Display adapters" appears in the list, click it.
If "Display adapters" doesn't appear, skip to step 9 and continue.
(6) The name of your card will be listed in the box. Double click it.
(7) The properties box of your card appears. Select "Driver" tab.
(8) Click "Change Driver.." and follow the installation steps.
(9) Click "Other devices" and you will see your card listed.
(10) Click on the card, and when the properties box appears.
Select the "Driver" tab.
(11) Click "Change Driver.." and follow the installation steps.

Problem: When the system is starting up, there is a series of prolonged beeps.
Solution:
The VGA card may not be firmly inserted into the expansion slot. Ensure that the gold-striped bus connector of the graphics card is properly inserted into the expansion slot. Ensure this by pressing the card gently and evenly into the slot. Alternatively, remove the card and re-insert it.

Problem: Monitor display flickers after Windows 95 or Windows 98 starts.
Solution:
Your monitor may not support the resolution or refresh rate that you have set. You must use display settings supported by the monitor. To change the display settings:

(1) Restart your system in Windows 95/Windows 98 Safe mode. To do so:
   a. Restart your system and when the message "Starting Windows 95/98…" appears, press F8. A list of options including Safe Mode and Command Prompt Only Mode appears.
   b. Select Safe Mode and press **ENTER**.

(2) Lower your monitor's resolution.
   For the resolutions supported by your monitor, refer to its manual.

When you need advanced technique service, please Complete this form and FAX to your dealer.

Your name: **Phone :**
Product S/N: **PCB NO.:**

HARDWARE CONFIGURATION	
Mainboard Chipset:	**CPU Speed: MHz**
Mainboard CPU:	**VGA Memory Type:**
Mainboard Memory: MB	**VGA Memory MB**
Mainboard Brand:	**VGA Memory Brand:**
Cache Memory: KB	**FDD/HDC Card:**
Monitor Type:	**Horizontal Freq. : KHz to KHZ** **Vertical Freq. : HZ to HZ**
Operating System or Test Programs:	
Application Software:	
Other Cards installed in system:	
Problem Description:	

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